





B.E./B.Tech(Full Time) DEGREE END SEMESTER EXAMINATIONS, Nov /Dec 2012  
GEO INFORMATICS  
FOURTH SEMESTER – (REGULATION 2008)  
GI 9251 – SURVEYING- II

Time: 3 hrs

Max Marks: 100

Answer ALL Questions

Part – A (10 x 2 = 20 Marks)

1. List the permanent and temporary adjustments of transit.
2. What is closing error in traversing? How is it balanced?
3. List different types of signals used in triangulation and its significance
4. The constant for an instrument is 850, the value of  $C = 0.5$  m, and intercept  $s = 3$  m. Calculate the distance from the instrument to the staff when the micrometer reading are 4.628 and 4.626 and the line of sight is inclined at  $+10^{\circ}36'$ . The staff was held vertical
5. Brief about Electronic positioning system.
6. What is Relief?
7. How would you determine the omitted measurements when the affected sides are not adjacent?
8. A Current meter has the rating curve represented by equation  $V = 2N$ , where  $V$  is the velocity in m/sec and  $N$  is the number of revolutions per second. Determine the velocity at a point in the river if the number of revolutions per minute as counted by the head phone is 100.
9. List different types of scales used in topographical survey
10. Differentiate Digital Terrain Model and Digital Elevation Model.

Part – B (5 x 16 = 80 Marks)

11. A closed traverse was conducted round an obstacle and the following observations were made. Work out the missing quantities:

Line	Length in m	Bearings
AB	-	$33^{\circ} 45'$
BC	300	$86^{\circ} 23'$
CD	-	$169^{\circ} 23'$
DE	450	$243^{\circ} 54'$
EA	268	$317^{\circ} 30'$

(16 marks)

12. (a) What is Gale's Table? Discuss the procedure for recording the various entries in the table. (16 marks)

(OR)

- (b) (i) Derive the expression for Tangential Tacheometric method (8 marks)

- (ii) A tacheometer set up at an intermediate point on a traverse course PQ and the following observations are made on a vertically held staff.

Staff Station	Vertical Angle	Staff intercept	Axial hair reading
P	+9° 30'	2.250	2.105
Q	+6° 00'	2.055	1.875

The instrument is fitted with an anallactic lens and the multiplying constant is 100. Compute the length PQ and the reduced level of Q. RL of P = 350.50m

(8 marks)

- 13.(a) i) Two triangulation stations A and B are 60 kilometres apart and have elevations 240 m and 280 m respectively. Find the minimum height of signal required at B so that the line of sight may not pass near the ground than 2 meters. The intervening ground may be assumed to have a uniform elevation of 200 meters.

(8 marks)

- ii) Calculate the sag correction for a 30 m steel tape under a pull of 100 N in three equal spans of 10 m each. Mass of 1 cubic cm of steel = 7.86 g. Area of cross section of tape = 0.08 sq.cm.

(8 marks)

(OR)

- (b) What is meant by a satellite station and reduction to center? Derive expression for reducing the angles measured at the satellite stations to centre (16 marks)

14. (a) Explain about the methods of locating Soundings. How the Soundings can be plotted using three point problem (16 marks)

(OR)

- (b) Explain about Discharge measurement (16 marks)

15. (a) What types of instruments are used for location details in topographical survey? Explain about the methods of representation of relief (16 marks)

(OR)

- (b) (i) Briefly explain about the uses of DTM and DEM (8 marks)

- ii) Two cross sections AB and CD each perpendicular to the base line AC of 250 m length are established for measuring the velocity of flowing water in a river. When the float was on the section AB, the angle AEB measured from a point E on the base line, 100 m from A, was 50°30'40", and the angle CED was 45°35'20". If the time taken by the float to travel the distance BD was 90 seconds, calculate the velocity of water (8 marks)